



# UNITED STATES PATENT AND TRADEMARK OFFICE

A  
UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/720,816	11/24/2003	Thomas W. Stone	10010937-1	5361
7590	12/28/2005		EXAMINER	
AGILENT TECHNOLOGIES, INC. Legal Department, DL 429 Intellectual Property Administration P.O. Box 7599 Loveland, CO 80537-0599			CHIEM, DINH D	
			ART UNIT	PAPER NUMBER
			2883	
			DATE MAILED: 12/28/2005	

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/720,816	STONE ET AL.
	Examiner Erin D. Chiem	Art Unit 2883

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 05 October 2005.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) 4 is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-3 and 5-10 is/are rejected.
- 7) Claim(s) 4 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)  
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_

## **DETAILED ACTION**

In view of the appeal filed on October 5, 2005, and especially in view of further search, and the consequent upturn of relevant prior art documents, a new rejection is set forth below. The finality of the office action mailed May 6, 2005 has been withdrawn. This action with the rejections of claims 1-10, is made NON-FINAL.

### *Claim Objections*

Claim 4 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 4 contains the exact recitation as claim 2.

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 1 is rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure, which is not enabling. The existence of a beam splitter or a polarization rotator is critical or essential to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). In claim 1, in the description pertaining to the polarization separating sub-system, the claim recites –...*the input optical beam*

Art Unit: 2883

*into a first optical beam of a first polarization and a second optical beam of a second polarization, said second polarization being distinct from said first polarization,[how?] and emitting a first emitted optical beam of the first polarization and a second emitted optical beam of the first polarization, said emitted first and emitted second optical beams constituting an input channel of the first polarization;--.* The most logical reasoning is that a beam splitter could have been employed to the first optical beam of a first polarization such that there are two optical beams of the same polarization, or there must be a polarization rotator such that the two beams have the same polarization. The examiner arrives at the conclusion because the counterpart beam (second optical beam of a second polarization) is not mentioned any further in dependent claims.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3 and 5-10 rejected under 35 U.S.C. 102(e) as being anticipated by Stone (US 6,585,382 B1)

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37

Art Unit: 2883

CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Regarding claim 1, Stone teaches a polarization separating system (Fig. 1; (10) and Fig. 14; (202)), at least one switchable diffraction grating (12) (col. 6, lines 26-39); and, a polarization recombining sub-system (Fig. 14; (204)); the means for varying a diffraction efficiency of the switchable diffraction grating is provided by control signal (C1). The separating sub-system separates the input beam (194) into two beams (210) and (211) polarized orthogonally (col. 10, lines 24-42). A polarization rotator (198) is provided to rotate one of the beam such that both beams have the same polarization and are incident on to grating (192), (NOTE: Stone teaches switchable mirrors and switchable gratings interchangeably) as an input channel of the first polarization; switchable diffraction gratings (12) is one of three (12, 14, 16) gratings in the separating sub-system; the polarization recombining sub-system works similarly as the separating sub-system but in the reversal direction, as would be understood to one having ordinary skill in the art. In Fig. 14, the final output beam (196) constitute a set of output beams.

Regarding claim 2, the polarization rotator or "pixellated retarder" or "steering gratings" as incorporated from reference (US 5,692,077) are used interchangeably. This element is placed between the diffraction grating and the recombining sub-system.

Regarding the limitation wherein the at least one switchable diffraction grating comprises one switchable volume diffraction grating (claim 2 and 5). Stone teaches in col. 6, lines 6-12 that recent improvement of high efficiency volume diffraction gratings allows one or more of the switching mirrors to be replaced with the mentioned volume diffraction gratings.

Art Unit: 2883

Regarding claim 6, the transparent glass may be used to separate the planes of switched gratings to provide a monolithic and stable device (col. 4, lines 50-52).

Regarding claim 7, wherein the two final output beams (196) exiting from the recombining sub-system (204) is visible in Fig. 14.

Regarding claims 8-10, the method steps are implicitly understood to one having ordinary skill in the art from the disclosure of the structural embodiment of the limitations above.

***Response to Arguments***

Applicant's arguments, see appeal brief, filed October 5, 2005, with respect to grounds of rejection to claims 1-10 to Liu '838 have been fully considered and are persuasive. The rejections to claims 1-10 to Liu '838 have been withdrawn.

New rejections have been made to claims 1-10 to Stone '382 under 35 U.S.C. 102(e) and fully addressed above. As such, this office action is made **NON-FINAL**.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erin D. Chiem whose telephone number is (571) 272-3102. The examiner can normally be reached on Monday - Thursday 9AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Erin D Chiem  
Examiner  
Art Unit 2883



Brian Healy  
Primary Examiner